

Abstract

A filter device for mass exchange between two media separated by a membrane providing a low-stress transfer of blood flow from the connection area of the filter device to the fibers of a hollow fiber bundle is disclosed. Relatively uniform utilization of the fibers is provided by a membrane in the form of a hollow fiber bundle whose fiber cavities form a first flow space, with at least one inflow or outflow chamber connected to the first flow space being provided for supplying a medium to the hollow fiber bundle or removing a medium from the hollow fiber bundle. The inflow or outflow chamber is adjacent to an essentially circular or semicircular channel which is designed to be open in the direction of the ends of the hollow fibers and is connected to an inlet or outlet of the filter device. The channel is arranged approximately centrally with the hollow fiber bundle and preferably has a cross-sectional area that decreases in the direction of flow, and also preferably has an outside diameter that is less than the diameter of the hollow fiber bundle.

An end cap for a filter device is also provided which as an inflow or outflow chamber adjacent to an essentially circular or semicircular channel designed to be open in the direction of the ends of the hollow fibers of a hollow fiber bundle arranged in a filter device casing connectable to the end cap. The essentially circular or semicircular canal is connected to an inlet or outlet of the end cap, arranged approximately centrally with the hollow fiber bundle, has a cross-sectional area that decreases in the direction of flow, and has an outside diameter that is smaller than the inside diameter of the area of the end cap which holds the hollow fiber bundle.